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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 09/590,646 | 06/08/2000 | Vernon M. Williams | 4210US (99-0173) | 1022 |
| 7590 Joseph A Walkowski Trask Britt & Rossa P O Box 2550 Salt Lake City, UT 84110 | | 01/24/2007 | EXAMINER MITCHELL, JAMES M | |
| | | | ART UNIT 2813 | PAPER NUMBER |
| SHORTENED STATUTORY PERIOD OF RESPONSE | | MAIL DATE | DELIVERY MODE | |
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Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

09/590,646

Applicant(s)

WILLIAMS ET AL.

Examiner

James M. Mitchell

Art Unit

2813

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 16 October 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-69 is/are pending in the application.
- 4a) Of the above claim(s) 3,9,32,38,50 and 54 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,2,4-8,10-31,33-37,39-53 and 55-69 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date 10/16/06

- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

1. This office action is in response to applicant's remarks filed October 16, 2006.

Information Disclosure Statement

2. Since applicant provided a copy of the IDS filed January 25, 2002, the copy has been signed and attached with this office action. However, there is no copy available of applicant's IDS filed May 30, 2001. A request has been made by examiner for the paper file to be checked and for the IDS filed May 30, 2001 to be scanned so that an electronic copy is available for review.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter, which the applicant regards as his invention.

4. Claims 1, 2, 4-8, 10-25, 26-31, 33-37, 39-49, 51-53, 55-66 and 67- 69 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. There is no structural limitation as claimed to inform one of ordinary skill in the art to the metes and bounds of a jacket¹ in the context of male and female sockets.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

¹ In addition, applicant in his remarks indicated that a jacket is not disclosed citing only that the reference discloses a ring and pedestal. Applicant needs to affirmatively distinguish between the claimed jacket and ring.

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claim 1, 2, 4-8, 10-24, 26-31, 33-37, 39-49, 51-53, 55-65 and 67- 69 are rejected under 35 U.S.C. 103(a) as being unpatentable over Subrahmanyam et al. (U.S. 5,411,400).

7. Subrahmanyam (Fig. 1, 8, 9) disclose:

(cl. 1, 22, 26, 27-30, 35, 36, 47, 48, 64, 65, 67, 68) a conductive structure for connecting a contact pad of a semiconductor device/flip-chip/CSP or semiconductor die with bond pads arranged in an array on a surface thereof and a contact-pad of a substrate/carrier substrate (e.g. carries chip), comprising: a female member/2nd member (42) configured to be secured to the contact pad (23) of one of the semiconductor device (11) and the substrate (13/22), said female member having: a jacket (e.g., understood to mean any outer surface of a member, e.g. 34) with an aperture/receptacle (e.g. terminal, 32 inserted in; not labeled) configured to be located over the contact pad; and a conductive center partially filling² said aperture (e.g. member with a recess/aperture with bottom) that with an upper portion of said aperture being open (Fig. 9); and a male member/1st member (32) configured to be secured to the corresponding contact pad of the other of the substrate (22) and the semiconductor device, said male

² The partially filling limitations do not further distinguish the prior art from the claimed invention, because the structural features imparted is simply a member that has an aperture with a bottom. Furthermore, the patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process." In re Thorpe, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985)

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member having: a jacket having an end (e.g. surface of 37) configured complementarily to said upper portion of said aperture of said jacket of said female member (32; Fig. 9), said jacket having an aperture configured to be located over the corresponding contact pad; and a conductive center substantially filling said aperture (see footnote 1);

(cl. 2, 52) wherein said aperture of said jacket of said female member (42) is configured to partially limit insertion of said male member thereinto (e.g. bottom & sides of 42 limit; see e.g. Fig. 9);

(cl. 4, 13, 33, 39, 51, 55) the aperture tapers inwardly³ (aperture portion of 39; Fig. 8, 9);

(cl. 5) an outer surface of jacket (37) of said male member is configured to partially limit insertion of said male member into said aperture of said jacket of said female member (Fig. 9);

(cl. 6, 7, 34, 36, 56) wherein said outer surface is tapered (e.g. portion of 37 next to 34) and like a cone so therefore frustoconical;

(cl. 8, 31, 49, 53) wherein said jacket of said male member has an end (e.g. tip of 37 closest to 29) portion with a smaller periphery than a base portion of said jacket (e.g. wide portion of 37; See Fig. 1, top-down view)

(cl 12) said aperture of said jacket of said female member is configured to facilitate alignment of said male member and said female member (Fig. 1);

³ Note, although shown in the prior art, even if the feature were not shown, they still would be considered obvious in light of any standard chip socket (e.g. Kardon, U.S. 5,418,471) since applicant has not disclosed that his claimed shapes are unobvious or otherwise critical. See M.P.E.P 2144.04[R-1]

(cl. 14) wherein an outer surface of said jacket of said male member is configured to facilitate alignment of said male member and said female member (e.g. shape of hole aligned also with shape of jacket (Fig. 1);

(cl. 15) wherein said outer surface tapers outward-from said-end (e.g. tip of 37) to a base portion (e.g. widest portion of 37) thereof;

(cl 16) and the outer surface (37) is cone shape and therefore frustoconical;

(cl. 21, 44) wherein at least one of said conductive centers comprises a solder, a metal, or a metal (Col. 2-3, Lines 66-1);

(cl. 37) wherein an upper portion (e.g. outermost portion of 39) of said aperture has a larger periphery than a base portion of said aperture (e.g. where 29 meets 34);

(cl. 69) wherein the semiconductor is a semiconductor (Col. 3, Lines 19-20).

8. Subrahmanyam does not disclose its male and female connector comprised of multiple pieces or the claimed materials⁴ for it female member,

9. However, applicant has not disclosed that his breaking a known structure into multiple pieces produces unexpected results or otherwise critical. As such, the forming the individual elements such as jacket and conductive center from an integral component would have been obvious to one of ordinary skill in the art, since it has been held that making integral items separable or visa-versa is prima facie obviousness. Cf., In re Larson, 340 F.2d 965, 968, 144 USPQ 347, 349 (CCPA 1965) (A claim to a fluid transporting vehicle was rejected as obvious over a prior art reference which differed

⁴ Examiner recommends that applicant clearly claim that the material is separate and distinct/different from the remaining portion of the female body. Thereby, bringing to light that the jacket and center conductive portion of either the male or female portions are different. This would distinguish applicant's invention over cited prior art.

from the prior art in claiming a brake drum integral with a clamping means, whereas the brake disc and clamp of the prior art comprise several parts rigidly secured together as a single unit. The court affirmed the rejection holding, among other reasons, "that the use of a one piece construction instead of the structure disclosed in [the prior art] would be merely a matter of obvious engineering choice."), See M.P.E.P. §2144.04.

10. With respect to the selection of the claimed material, the selection of a known material based on its suitability for its intended use supported a *prima facie* obviousness determination in *Sinclair & Carroll Co. v. Interchemical Corp.*, 325 U.S. 327, 65 USPQ 297 (1945). See M.P.E.P. §2144.07.

11. Claim 25 and 66 are rejected under 35 U.S.C. 103(a) as being unpatentable over Subrahmanyam et al. (U.S. 5,411,400) in combination with Abe et al. (U.S. 5,646,442).

12. Subrahmanyam discloses the same invention as claimed in paragraphs 7-10 of this office action except that his chip package is cylindrical instead of a BGA, Abe (Fig. 2A, 4) shows that for a socket connection terminals that cylindrical terminals are equivalent to BGA structure known in the art. Therefore, because these two contact structures are art recognized equivalents at the time the invention was made, one of ordinary skill in the art would have found it obvious to substitute Ball type terminals for cylindrical ones.

Response to Arguments

13. Applicant's arguments with respect to claims have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to James M. Mitchell whose telephone number is (571) 272-1931. The examiner can normally be reached on M-F 8:00-4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Carl Whitehead Jr. can be reached on (571) 272-1702. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Ex. Mitchell, J.D.
January 21, 2007



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